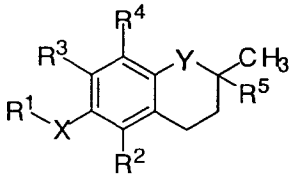
WHAT IS CLAIMED IS:

1. A method for the treatment of a cell proliferative disease comprising administering to an animal a pharmacologically effective dose of a compound having a structural formula



wherein X is oxygen, nitrogen or sulfur;

Y is oxygen or NR^6;

R^1 is R^7, $-C_{1-4}$alkylene-O-C_{1-4}alkyl, $-C_{1-10}$alkylene-CO-SH, $-C_{1-4}$alkylene-CO-S(C_{1-4}alkyl), $-C_{1-4}$alkylene-CS-NH_2, saccharide, alkoxy-linked saccharide, $-C_{1-4}$alkylene-CO-$NH_{(2-n)}$(C_{1-4}alkyl)$_n$ wherein n is 2 or 1, $-C_{1-4}$alkylene-SO_2-O(C_{1-4}alkyl), $-C_{1-4}$alkylene-OSO_2-O(C_{1-4}alkyl), $-C_{1-4}$alkylene-OP(O-C_{1-4}alkyl)$_3$, or $-C_{1-10}$alkylene-CN; or

X and R^1 jointly symbolize N=NR^9;

R^2, R^3 are independently hydrogen, $-C_{1-4}$alkyl, $-CH_2(C_6H_4)C_{1-4}$alkylene-COOH), $-C_{1-4}$alkylene-COO-$CH_2(C_6H_5)$, $-C_{1-4}$alkylene-CO-NH-$CH_2(C_6H_5)$, saccharide, $-C_{1-4}$alkylene-C-$NH_{(2-n)}$(C_{1-4}alkyl)$_n$ wherein n is 2 or 1;

R^4 is C_{1-4}alkyl, $-CH_2(C_6H_4)C_{1-4}$alkylene-COOH), $-C_{1-4}$alkylene-

COO-$CH_2(C_6H_5)$, -C_{1-4}alkylene-CO-NH-$CH_2(C_6H_5)$, saccharide, -C_{1-4} alkylene-CO-$NH_{(2-n)}(C_{1-4}alkyl)_n$ wherein n is 2 or 1;

R^5 is methyl or R^8;

R^6 is hydrogen or -C_{1-4}alkyl;

R^7 is –C_{1-10}alkylene-COOH, -C_{1-4}alkylene-$CONH_2$, -C_{1-4}alkylene-COO-C_{1-4}alkyl, -C_{1-4}alkylene-CON(C_{1-4}alkylene-COOH)$_2$, -C_{1-4}alkylene-OH, -C_{1-4}alkylene-NH_3-halo or -C_{1-4}alkylene-$OSO_2NH(C_{1-4}alkyl)$; and

R^8 is -C_{7-17}alkyl, -COOH, -C_{7-17} olefinic group containing 3 to 5 ethylenic bonds, -C=C-COO-C_{1-4}alkyl, or -C_{1-4}alkylene-COO-C_{1-4} alkyl; or a pharmaceutical composition thereof;

wherein when X and Y are O,

R^1 is R^7,

R^2, R^3 are independently hydrogen or C_{1-4}alkyl;

R^4 is C_{1-4}alkyl; and

R^5 is R^8;

with the proviso that R^7 can not be –C_{2-4}alkylene-COOH nor -C_2alkylene-OH when R^2, R^3, R^4 are each methyl and R^8 is a C_{16} alkyl.

2. The method of claim 1, wherein said compound is selected from the group consisting of 2,5,7,8-tetramethyl-(2R-

(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) hexanoic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) octanoic acid, 2,5,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) acetamide, methyl 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetate, 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(carboxy)chroman-6-yloxy))acetic acid, 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-trimethylundecyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-2R-(2,6,10-trimethyl-1,3,5,9 E:Z decatetraen)chroman-6-yloxy)acetic acid, 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride, 2-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl) chroman-6-yloxy)triethylammonium sulfate, 2,5,7,8-tetramethyl-(2R-(heptyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-(2R-(tridecyl)chroman-6-yloxy) acetic acid,

2,5,7,8,-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy) acetic acid, 2,5,7,8,-tetramethyl-2R-(4,8,-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy) acetic acid, (R)-2[(2,5,7,8-tetramethyl-2-(3 propene methyl ester)chroman-6-yloxy]acetic acid, 2,5,7,8-tetramethyl-(2R-(methyl propionate)chroman-6-yloxy)acetic acid, 1-aza-α-tocopherol-6-yloxyl-acetic acid, 1-aza-α-tocopherol-6-yloxyl-methyl acetate, 1-aza-N-methyl-α-tocopherol-6-yloxyl-methyl acetate, and 1-aza-N-methyl-α-tocopherol-6-yloxyl-acetic acid.

3. The method of claim 1, wherein said compound exhibits an anti-proliferative effect comprising apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation.

4. The method of claim 1, wherein said animal is a human.

5. The method of claim 1, wherein said composition is administered in a dose of from about 1 mg/kg to about 60 mg/kg.

6. The method of claim 1, wherein administration of said composition is selected from the group consisting of oral, topical, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.

7. The method of claim 1, wherein said cell proliferative disease is a neoplastic disease, a non-neoplastic disease or a non-neoplastic disorder.

8. The method of claim 7, wherein said neoplastic disease is selected from the group consisting of ovarian cancer, cervical cancer, endometrial cancer, bladder cancer, lung cancer, breast cancer, testicular cancer, prostate cancer, gliomas, fibrosarcomas, retinoblastomas, melanomas, soft tissue sarcomas, ostersarcomas, leukemias, colon cancer, carcinoma of the kidney, pancreatic cancer, basal cell carcinoma, and squamous cell carcinoma.

9. The method of claim 7, wherein said non-neoplastic disease is selected from the group consisting of psoriasis, benign proliferative skin diseases, ichthyosis, papilloma, restinosis, scleroderma, hemangioma, a viral disease, and an autoimmune disease.

10. The method of claim 9, wherein said autoimmune disease is selected from the group consisting of autoimmune thyroiditis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, dermatitis herpetiformis, celiac disease, and rheumatoid arthritis.

11. The method of claim 7, wherein said non-neoplastic disorder is a viral disorder or an autoimmune disorder.

12. The method of claim 11, wherein said viral disorder is Human Immunodeficiency Virus.

13. The method of claim 11, wherein said autoimmune disorder is selected from the group consisting of the inflammatory process involved in cardiovascular plaque formation, ultraviolet radiation induced skin damage and a disorder involving an immune component.

14. A method for the treatment of a cell proliferative disease comprising administering to an animal a pharmacologically effective dose of 6-(2,4-dinitrophenylazo)-2,5,7,8-tetramethyltridecyl))-1,2,3,4-tetrahydroquinoline.

15. The method of claim 14, wherein said compound exhibits an anti-proliferative effect comprising apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation.

16. The method of claim 14, wherein said animal is a human.

17. The method of claim 14, wherein said composition is administered in a dose of from about 1 mg/kg to about 60 mg/kg.

18. The method of claim 14, wherein administration of said composition is selected from the group consisting of oral, topical, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.

19. The method of claim 14, wherein said cell proliferative disease is a neoplastic disease, a non-neoplastic disease or a non-neoplastic disorder.

20. The method of claim 19, wherein said neoplastic disease is selected from the group consisting of ovarian cancer, cervical cancer, endometrial cancer, bladder cancer, lung cancer, breast cancer, testicular cancer, prostate cancer, gliomas, fibrosarcomas, retinoblastomas, melanomas, soft tissue sarcomas, ostersarcomas, leukemias, colon cancer, carcinoma of the kidney, pancreatic cancer,

basal cell carcinoma, and squamous cell carcinoma.

21. The method of claim 19, wherein said non-neoplastic disease is selected from the group consisting of psoriasis, benign proliferative skin diseases, ichthyosis, papilloma, restinosis, scleroderma, hemangioma, a viral disease, and an autoimmune disease.

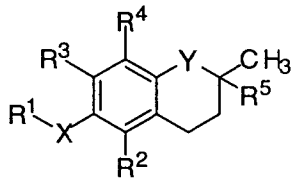
22. The method of claim 21, wherein said autoimmune disease is selected from the group consisting of autoimmune thyroiditis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, dermatitis herpetiformis, celiac disease, and rheumatoid arthritis.

23. The method of claim 19, wherein said non-neoplastic disorder is a viral disorder or an autoimmune disorder.

24. The method of claim 23, wherein said viral disorder is Human Immunodeficiency Virus.

25. The method of claim 23, wherein said autoimmune disorder is selected from the group consisting of the inflammatory process involved in cardiovascular plaque formation, ultraviolet radiation induced skin damage and disorders involving an immune component.

26. A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of a compound having a structural formula



wherein X is oxygen, nitrogen or sulfur;

Y is oxygen or NR^6;

R^1 is R^7, -C_{1-4}alkylene-O-C_{1-4}alkyl, -C_{1-10}alkylene-CO-SH, -C_{1-4}alkylene-CO-S(C_{1-4}alkyl), -C_{1-4}alkylene-CS-NH_2, saccharide, alkoxy-linked saccharide, -C_{1-4}alkylene-CO-$NH_{(2-n)}$(C_{1-4}alkyl)$_n$ wherein n is 2 or 1, -C_{1-4}alkylene-SO_2-O(C_{1-4}alkyl), -C_{1-4}alkylene-OSO_2-O(C_{1-4}alkyl), -C_{1-4}alkylene-OP(O-C_{1-4}alkyl)$_3$, or -C_{1-10}alkylene-CN; or

X and R^1 jointly symbolize $N=NR^9$;

R^2, R^3 are independently hydrogen, -C_{1-4}alkyl, -$CH_2(C_6H_4)C_{1-4}$alkylene-COOH), -C_{1-4}alkylene-COO-$CH_2(C_6H_5)$, -C_{1-4}alkylene-CO-NH-$CH_2(C_6H_5)$, saccharide, -C_{1-4}alkylene-C-$NH_{(2-n)}(C_{1-4}alkyl)_n$ wherein n is 2 or 1;

R^4 is C_{1-4}alkyl, -$CH_2(C_6H_4)C_{1-4}$alkylene-COOH), -C_{1-4}alkylene-COO-$CH_2(C_6H_5)$, -C_{1-4}alkylene-CO-NH-$CH_2(C_6H_5)$, saccharide, -C_{1-4} alkylene-CO-$NH_{(2-n)}(C_{1-4}alkyl)_n$ wherein n is 2 or 1;

R^5 is methyl or R^8;

R^6 is hydrogen or -C_{1-4}alkyl;

R^7 is –C_{1-10}alkylene-COOH, -C_{1-4}alkylene-$CONH_2$, -C_{1-4}alkylene-COO-C_{1-4}alkyl, -C_{1-4}alkylene-CON(C_{1-4}alkylene-COOH)$_2$, -C_{1-4}alkylene-OH, -C_{1-4}alkylene-NH_3-halo or -C_{1-4}alkylene-$OSO_2NH(C_{1-4}alkyl)$; and

R^8 is -C_{7-17}alkyl, -COOH, -C_{7-17} olefinic group containing 3 to 5 ethylenic bonds, -C=C-COO-C_{1-4}alkyl, or -C_{1-4}alkylene-COO-C_{1-4} alkyl; or a pharmaceutical composition thereof;

wherein when X and Y are O,

R^1 is R^7,

R^2, R^3 are independently hydrogen or C_{1-4}alkyl;

R^4 is C_{1-4}alkyl; and

R^5 is R^8;

with the proviso that R^7 can not be $-C_{2-4}$alkylene-COOH _nor - C_2alkylene-OH when R^2, R^3, R^4 are each methyl and R^8 is a C_{16} alkyl.

27. The method of claim 26, wherein said compound is selected from the group consisting of 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) hexanoic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) octanoic acid, 2,5,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) acetamide, methyl 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetate, 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(carboxy)chroman-6-yloxy))acetic acid, 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-trimethylundecyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-2R-

(2,6,10-trimethyl-1,3,5,9 E:Z decatetraen)chroman-6-yloxy)acetic acid, 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride, 2-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl) chroman-6-yloxy)triethylammonium sulfate, 2,5,7,8-tetramethyl-(2R-(heptyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-(2R-(tridecyl)chroman-6-yloxy) acetic acid, 2,5,7,8,-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy) acetic acid, 2,5,7,8,-tetramethyl-2R-(4,8,-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy) acetic acid, (R)-2[(2,5,7,8-tetramethyl-2-(3 propene methyl ester)chroman-6-yloxy]acetic acid, 2,5,7,8-tetramethyl-(2R-(methyl propionate)chroman-6-yloxy)acetic acid, 1-aza-α-tocopherol-6-yloxyl-acetic acid, 1-aza-α-tocopherol-6-yloxyl-methyl acetate, 1-aza-N-methyl-α-tocopherol-6-yloxyl-methyl acetate, and 1-aza-N-methyl-α-tocopherol-6-yloxyl-acetic acid.

28. The method of claim 26, wherein said method is useful in the treatment of a cell proliferative disease.

29. A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of 6-(2,4-dinitrophenylazo)-2,5,7,8-tetramethyltridecyl))-1,2,3,4-tetrahydroquinoline.

30. The method of claim 29, wherein said method is useful in the treatment of a cell proliferative disease.